CA3 ONHW Q90
82 U6502 V.13

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MANN TESTING LABORATORIES REPORTS

Reference 30

CA3 ON HW Q90
82 U6502 v.13

MANN TESTING LABORATORIES LTD.
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PHONE: 890-2555 • TELEX: 06-960496

December 10, 1985

Reference 30

Ms. Anne Koven,
Upper Ottawa Street Landfill Study,
20 Jackson Street, Suite 412,
Hamilton,
Ontario, L8P 1L2

URBAN MUNICIPAL
APR 30 1987
GOVERNMENT DOCUMENTS

Re: Sampling and Analysis of Polynuclear Aromatic Hydrocarbon

Dear Anne:

The two sorbent tubes and filter samples collected at the test well in Upper Ottawa Street Landfill Site have been duly analysed by GC/MS for polynuclear aromatic hydrocarbons. Attached, please find a listing of the PAH's identifed in the samples and their approximate concentrations. I have also included the total ion chromatograms for your reference.

The samples were obtained by drawing air from a capped test well through copper tubing onto Orbo-43 sorbent cartridges equipped with silver membrene (0.8 um, 37 mm diameter) and cellulose support pad (37mm diameter). The filter cassettes were placed before the orbo sorbent tubes to trap the particulates emanating from the landfill wastes. In addition, in each sampling assembly a backup Orbo-43 tube was used to check for breakthrough. The filters were also spiked previously with deuterated standards for identification and qunatitation purposes.

Analysis of the PAH's was achieved by extracting the filters and Orbo-43 tube packings with methylene chloride, followed by subsequent filtration and concentration. The extracts were then concentrated to one millilitre before injecting into the GC/MS system. The instrument conditions used in the analysis were:

Mass Spectrometer:	Finnigan Model 4500
Mode:	Electron Impact
Column:	30m DB-5, 0.25mm i.d., 0.25 um film thickness
Temperature:	Initial: 50°C
	Initial hold:2 min.
	Program Rate:10°C/min
	Final Temp:285C
	Final hold:15 min.

Members: Association of Official Racing Chemists, American Chemical Society, Canadian Society of Forensic Science, Chemical Institute of Canada, American Society for Testing and Materials, Canadian Federation of Independent Business, Better Business Bureau, Association of the Chemical Profession of Ontario, Association of Professional Engineers of the Province of Ontario, Canadian Association of Fire Chiefs, American Industrial Hygiene Association, Air Pollution Control Association, Canadian Society of Safety Engineering, International Society for Respiratory Protection.

Quantitation of the PAH's in the sample was achieved by the comparison of the mass spectra and peak intensity of the unknown t0 the deuterated internal standards. In the case of total breakthrough of the deuterated standards, the quantitation was based on the external standards.

Since there was a high concentration of organic vapours emitting from the test well, the filters and the adsorbents were saturated with solvent, causing high amount of breakthrough of more volatile PAH's from the collecion device. The results thus obtained in this analysis is strictly semi-quantitative. To achieve better recoveries, a larger cartridge containing more XAD adsorbents should be used in future studies.

In summary,it appears that polynuclear aromatic hydrocarbons up to four rings are emanating from the landfill. However, future analysis will be needed to provide more accurate concentrations.

Should you have need further information about these results, please do not hesitate to give me a call.

Yours truly,

Cecilia Chan, M.Sc., C. Chem.
Research and Development

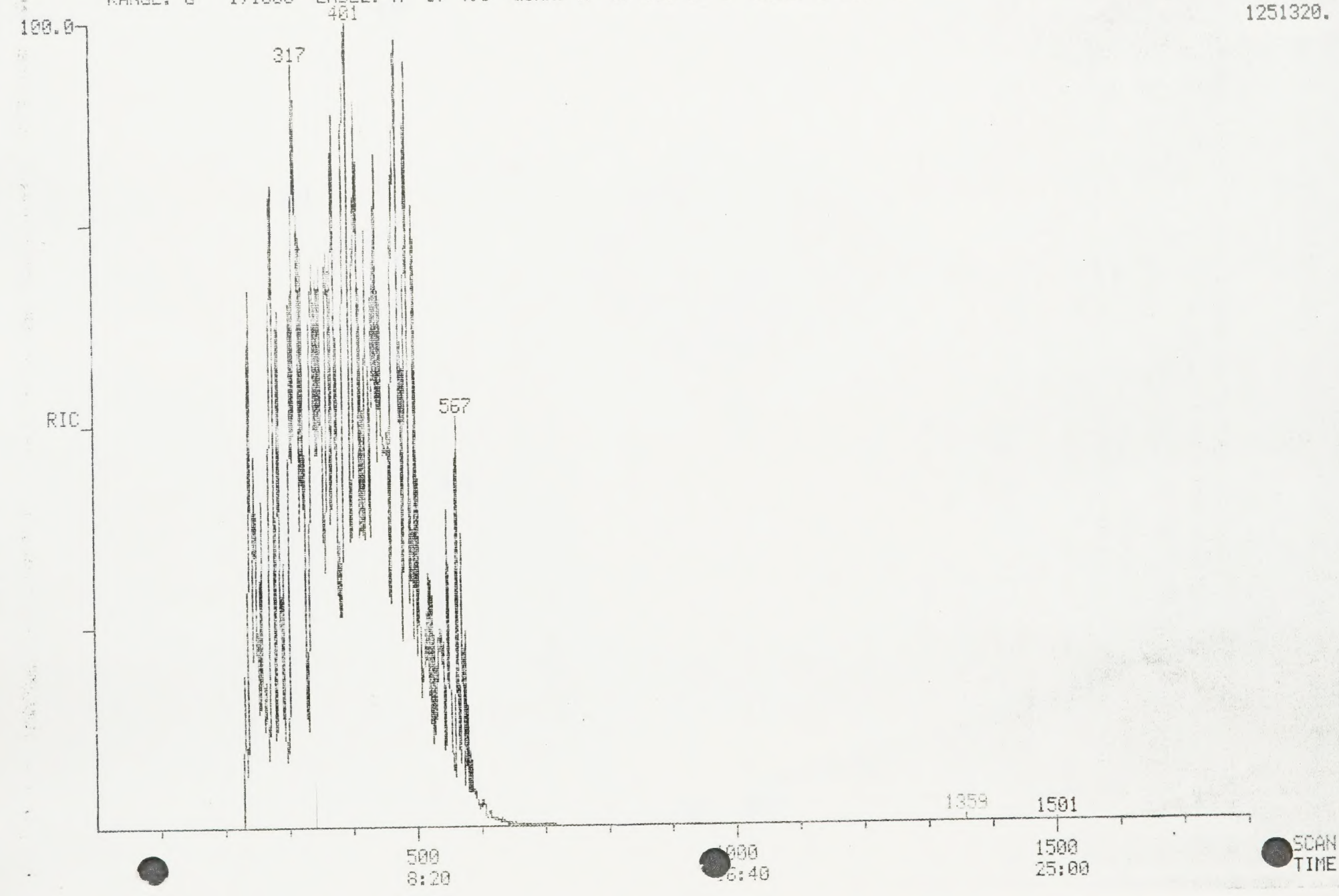
Encl.

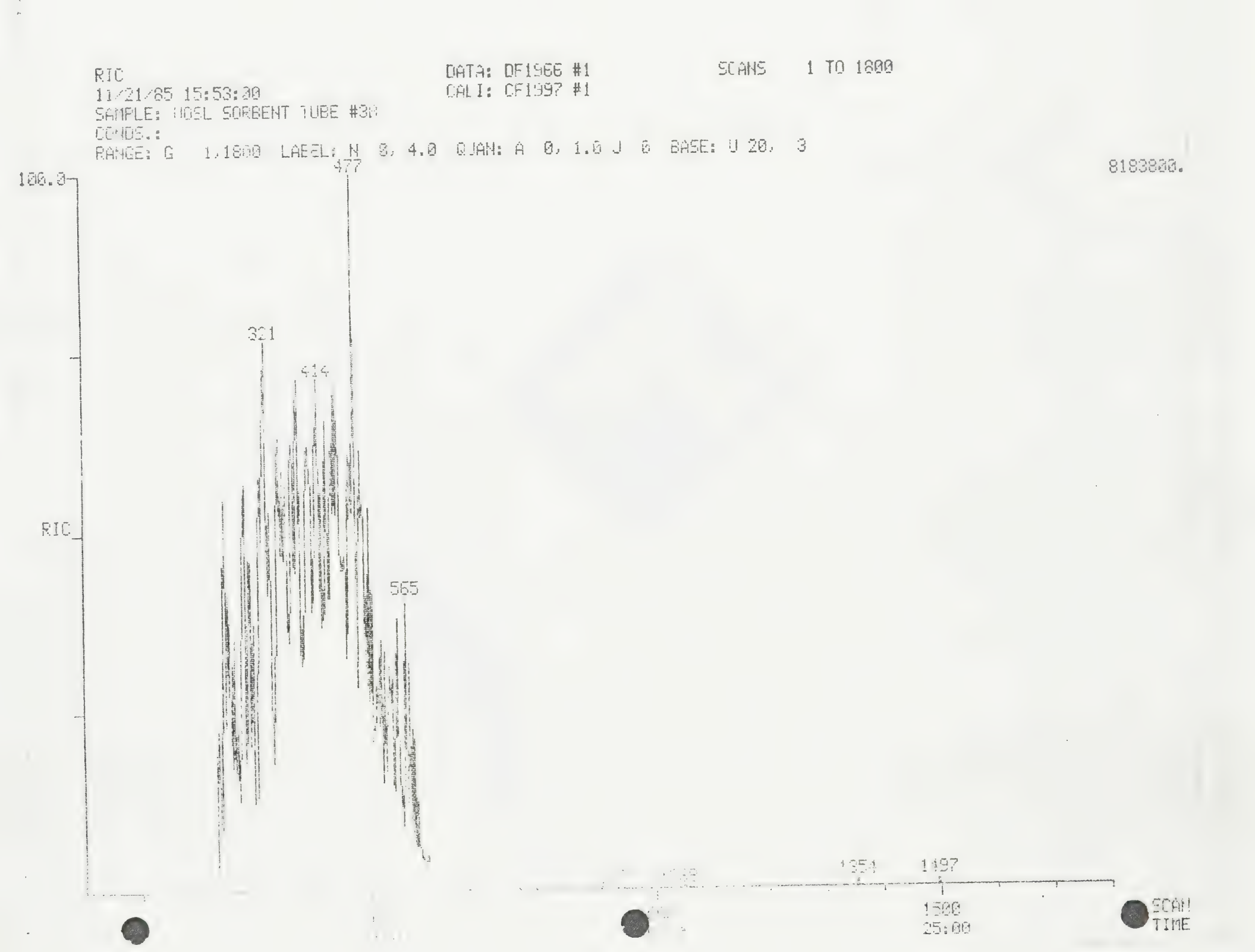
CONCENTRATIONS OF POLYNUCLEAR AROMATIC HYDROCARBONS (NG/L)

UPPER OTTAWA STREET LANDFILL TEST WELL

NO.	COMPOUND	FRONT ORBO TUBE + FILTER 6 HOURS	BACK ORBO TUBE 6 HOURS	FRONT ORBO TUBE + FILTER 3 HOURS	BACK ORBO TUBE 3 HOURS	BLANK
1	NAPHTHALENE	419.5	515.9	394.6	396.2	ND
2	BIPHENYL	94.7	621.3	30.4	316.4	ND
3	ACENPHTHYLENE	119.7	1048.8	3.8	35.2	ND
4	FLUORENE	86.4	403.8	ND	5.4	ND
5	PHENANTHRENE	175.9	126.9	ND	ND	ND
6	ANTHRACENE	4.9	21.9	ND	ND	ND
7	FLUORANTHENE	5.4	8.8	ND	ND	ND
8	PYRENE	1.7	ND	ND	ND	ND
9	BENZO(a)ANTHRACENE	ND	ND	ND	ND	ND
10	CHRYSENE	ND	ND	ND	ND	ND
11	BENZO(k)FLUORANTHRENE	ND	ND	ND	ND	ND
12	BENZO(a)PYRENE	ND	ND	ND	ND	ND
14	DIBENZO(a,h)ANTHRACENE	ND	ND	ND	ND	ND

RIC
11/21/85 19:02:00
DATA: DF1970 #1
CALI: CF1997 #1
SCANS 1 TO 1800
SAMPLE: UOSL SORBENT TUBE #3F, 1UL/1 ML
CONDS.:
RANGE: G 1,1800 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

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11/21/85 15:53:30
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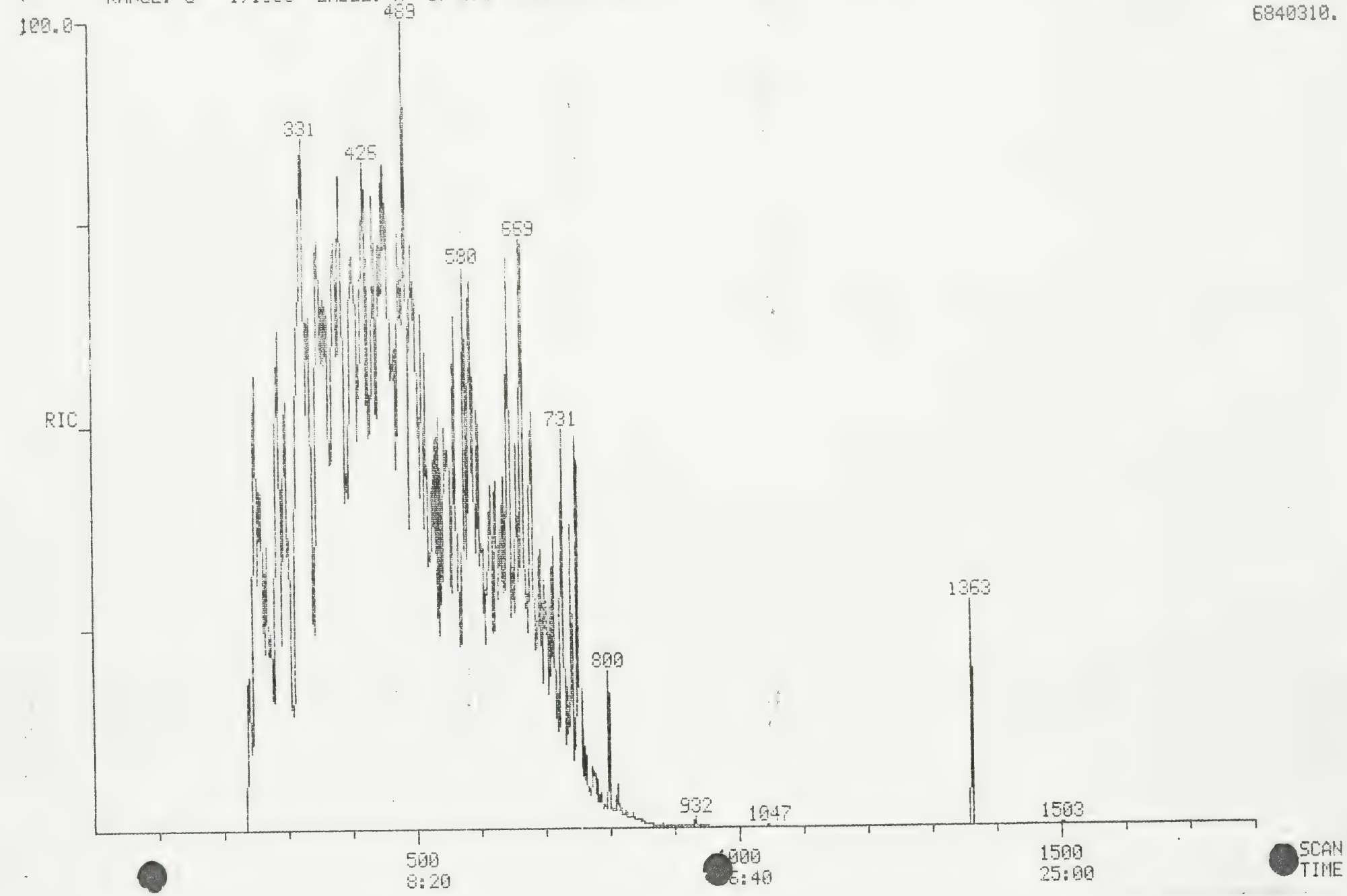
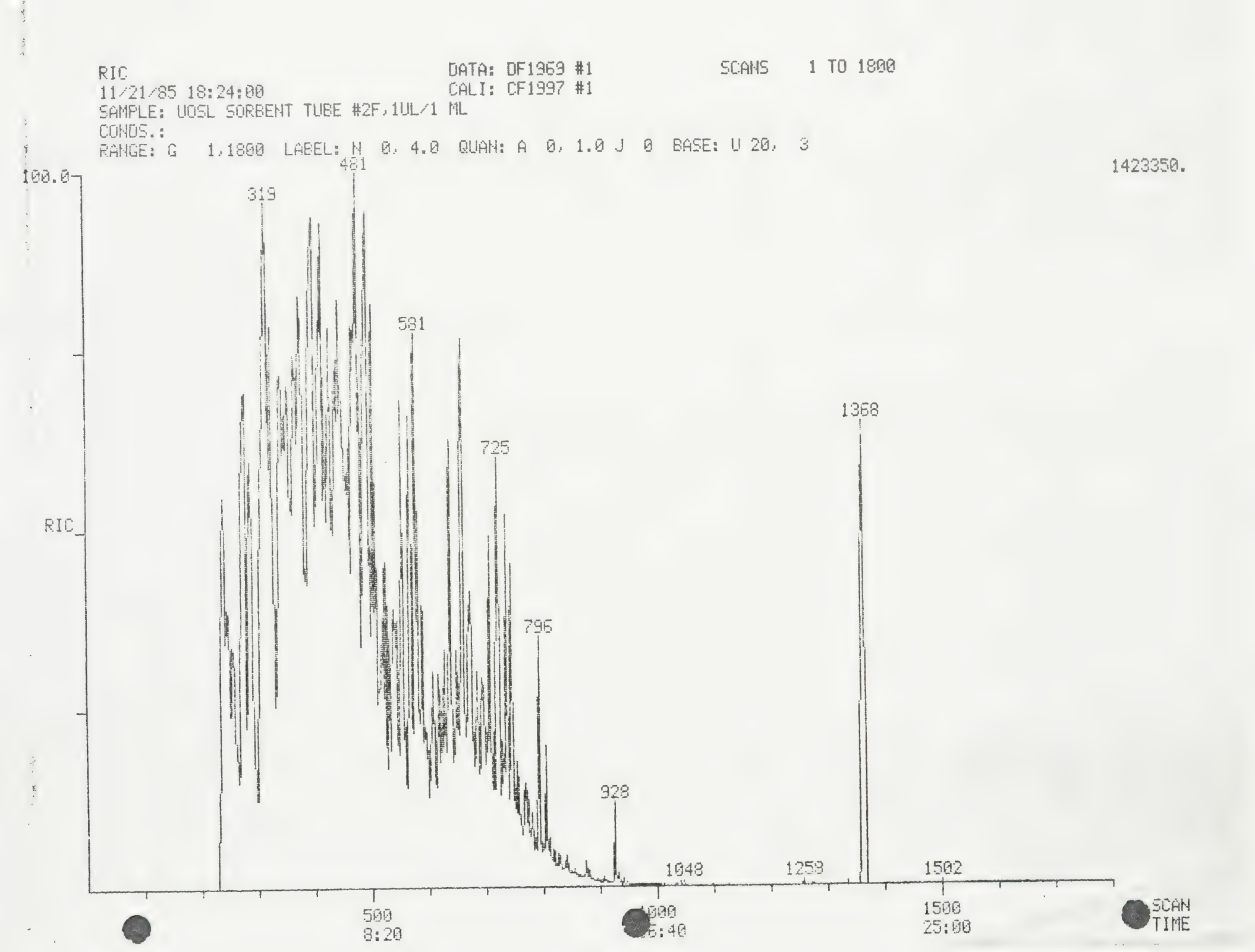
CONDS.:
DATA: DF1966 #1
CALI: CF1997 #1
SCANS 1 TO 1800
RANGE: G 1,1800 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
8183800.
100.0
RIC
477
321
414
565
1354
1497
1500
25:00
SCAN TIME

RIC
11/21/85 14:13:00
SAMPLE: UOSL SORBENT TUBE #2B
CONDS.: 100-290@20/MIN
RANGE: G 1,1800 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 1964 #1
CALI: CF1997 #1

SCANS 1 TO 1800




RIC
11/21/85 18:24:00
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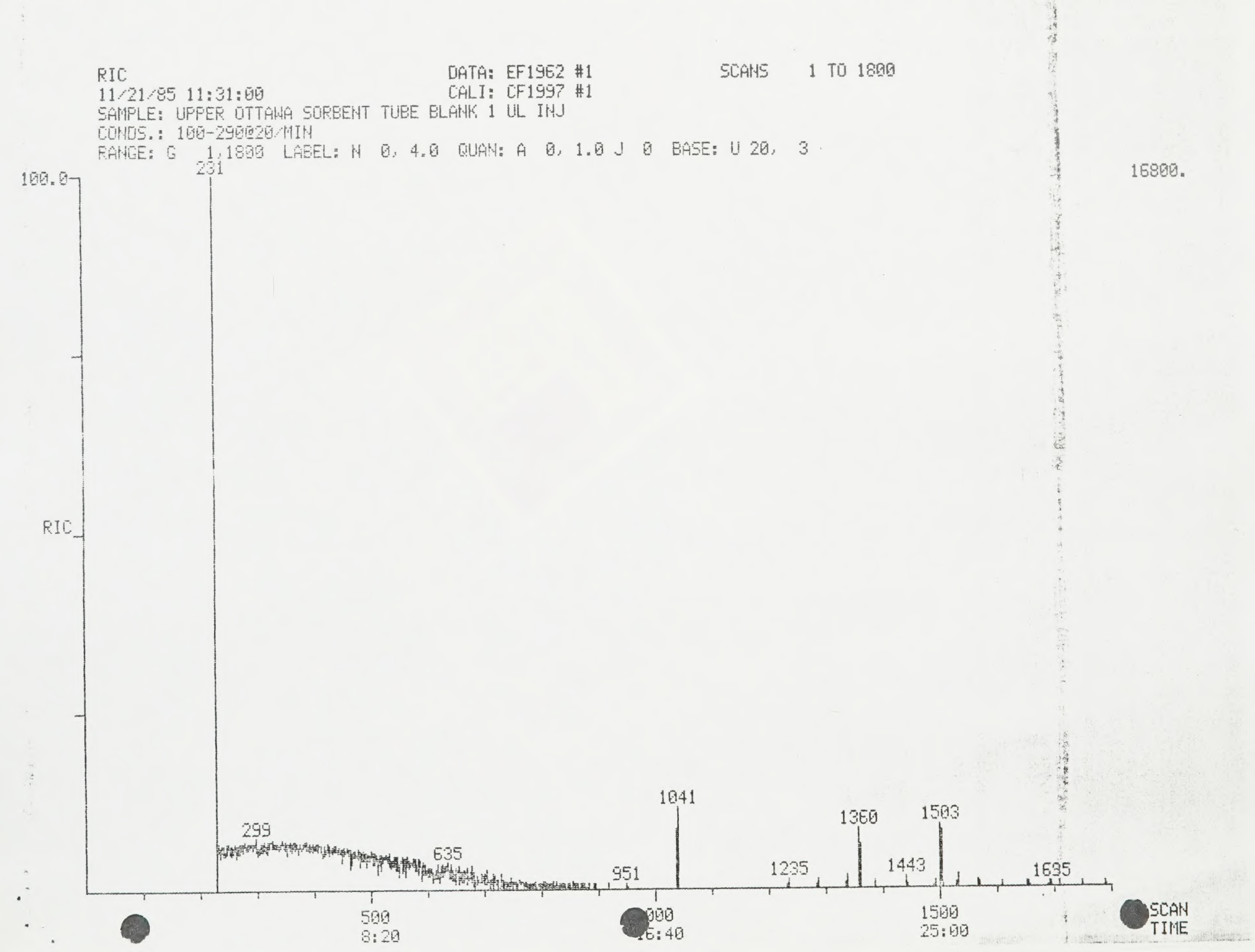
CONDS.:
RANGE: G 1,1800 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
DATA: DF1969 #1
CALI: CF1997 #1
SCANS 1 TO 1800
1423350.
100.0
RIC
319
481
581
725
796
928
1048
1259
1368
1502
500
8:20
1000
16:40
1500
25:00
SCAN
TIME


RIC
DATA: EF1962 #1
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11/21/85 11:31:00
CALI: CF1997 #1
SAMPLE: UPPER OTTAWA SORBENT TUBE BLANK 1 UL INJ
CONDS.: 100-290@20/MIN
RANGE: G 1,1800 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
100.0
16800.
RIC
231
299
635
951
1041
1235
1360
1443
1503
1695
500
8:20
1500
25:00
SCAN
TIME

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